## CONTENTS OF REDUCTION README FILE



## 1. WHAT'S THE PURPOSE OF THIS README?

This README file describes the MACT_gen and MACT_spec emission reduction information files that EPA will be providing with its toxics emissions processing program, EMS-HAP (Version 2.0). These files provide emission reduction information pertaining to rules (primarily Maximum Achievable Control Technology [MACT] and Section 129 Standards) that have or are expected to reduce hazardous air pollutant emissions from particular source categories. The emission reduction information contained in these files is at the national level, and is therefore more suited for national-scale toxics emission projections. Version 2.0 of EMS-HAP is currently available from http://www.epa.gov/scram001/tt22.htm#aspen. Chapters 6 and 11 of the User's guide detail how EMS-HAP uses these files and any additional reduction information you develop for conducting emission projections. For example, if you have reduction information on a local level, EMS-HAP can use it to produce local-scale toxics emission projections.

Please note the following with regards to the MACT_gen and MACT_spec files supplied with EMS-HAP version 2.0:
1) These files apply only to the 1996 National Toxics Inventory (NTI) (7/01 version). For more information on emission inventories, see the National Emission Inventory Data web page at http://www.epa.gov/ttn/chief/net/index.html. Any other version of the 1996 NTI or the 1999 National Emissions Inventory would require the revision of the files and an evaluation of the results.
2) The emission reduction information in these do not include reductions that will be achieved by: State/local control programs; area source rules resulting from additional source categories listed in the Urban Air Toxics Strategy on the web page http://www.epa.gov/ttn/atw/urban/urbanpg.html the residual risk program; community-scale assessments; the Clear Skies Initiative or the utility MACT. This information will be especially needed to project toxics emissions to years later than 2007 when many of these programs will be taking effect. You can account for these and other facility-specific reduction information in your projection by using the user-defined emission reduction option in EMS-HAP, and including user control information that you gather from these programs.
3) Finally, these some of the information is not known at this time, or may change and therefore, these files are expected to change as information becomes available. We request any comments or recommended changes to these files be sent by email to Madeleine Strum at strum.madeleine@epa.gov.

A brief description of these files is provided below:

| Filename | Brief Description |
|---|---|
| **Mact_genXXXX.txt** | Supplies general emission reduction information pertaining to national rules (primarily MACT standards) for projecting emissions from 1996 to the year XXXX (where XXXX is 1996, 1999, 2002, 2003, 2004, 2005, 2006 and 2020). General reduction information is provided for each MACT code in the emission inventory. General information includes: the compliance year and the percent reduction for all pollutants not covered in the Mact_spec.txt file. |
| **Mact_specXXXX.txt** | Supplies HAP or process-specific emission reduction information to project emissions from 1996 to the year XXXX (where XXXX is 1996, 1999, 2002, 2003, 2004, 2005, 2006 and 2020) based on the MACT code. This information is available for only some MACT codes. EMS-HAP will overwrite the general information (except compliance date) from the MACT_gen file with the more specific information from MACT_spec file. |

We are also posting the excel spreadsheets, **MACT_gen.xls** and **MACT_spec.xls**, that provide the basic data needed for constructing the MACT_gen.txt and MACT_spec.txt ancillary text files supplied in EMS-HAP. They are not used directly by EMS-HAP. The reason we created these spreadsheets is to provide you with a user-friendly way to review the data since descriptions and comments are not fully included in the MACT_gen and MACT_spec ancillary text file formats.

## 2. HOW ARE THESE FILES USED TO PROJECT FUTURE-YEAR AIR TOXICS EMISSIONS?

These files are used to apply reductions to 1996 stationary source emissions when running EMS-HAP to project stationary source emissions for a future year. EMS-HAP uses the reduction information from the MACT_gen file when only general information is available for a particular source category. The reductions in that file get applied to every pollutant and process in that MACT category uniformly. EMS-HAP uses the MACT_spec file when more detailed reduction information is available, for example, pollutant-specific reductions for one or more specific pollutants in the category. In projecting future year emissions, the user can also project emissions due to growth. See the README_growth file regarding the growth factor data provided with EMS-HAP.

The MACT_gen and MACT_spec files contain both information on whether to apply the reduction and the value of the reduction to apply. For example, the files contain a variable, SRC_FLAG, to indicate whether a standard (identified by the MACT code) would apply to major, area or both major and area sources. If the SRC_FLAG is major, then the reduction would only be applied to records in the inventory with that particular MACT code if they are from a major source (SRC_TYPE=major). The specific variables are discussed and their purpose are discussed in the next section. The approach EMS-HAP uses to assign and apply the MACT_gen and MACT_spec information to the inventory to project future-year emissions is presented in the EMS-HAP user's guide for version 2.0, available from from http://www.epa.gov/scram001/tt22.htm#aspen. Chapters 6 and 11 of the User's guide detail how EMS-HAP uses these files and any additional reduction information you develop for conducting emission projections.

**Example calculation:**

Compute 2004 emissions (presuming no growth) of hydrogen fluoride for a particular hydrogen fluoride inventory record with a phosphoric acid manufacturing MACT code.

*Inventory information*

Choose the following 1996 emission inventory record: Sitename = PCS Nitrogen Fertilizer
FIPS = 22005
EMS-HAP SiteID =22005-23685
EMS-HAP EMRELPID = 78764-93767-88719
Src_type = MAJOR
MACT= 1411
Hydrogen Fluoride baseline emissions = .58 tons/year

*MACT_gen and MACT_spec information*

For MACT=1411 (Phosphoric Acid Manufacturing), there is specific reduction information for hydrogen fluoride (NTI HAP = 119) in the MACT_spec2004.txt file. So, EMS-HAP uses the information in the MACT_spec2004.txt file as follows (variables below are also described in more detail the next section):

1) Apply Flag = 1, so reductions should be applied
2) MACT Source Flag =Major, so the reduction should only be applied to major sources (above inventory record indicates major source, so apply reduction)
3) Compliance Date (from the MACT_gen2004.txt file -this is the only information that comes from MACT_gen, for this calculation): is 6/10/2002. Since we are projecting to 2004, this compliance date has passed and we can apply the full reduction
4) Percent reduction for existing sources for hydrogen fluoride (NTI HAP=119) is 57%
5) Percent reduction for new sources for hydrogen fluoride (NTI HAP=119) is 57%
6) Percent of emissions subject to new source reduction is 0. This means use only the existing source reduction in the calculation.

Calculation

Emissions (tpy) in 2004 = Emissions in 1996 * growth factor * (100-percent reduction)/100
We chose, for this case no growth, so growth factor = 1

Emissions (tpy) in 2004 = 0.58*(100-57)/100 = 0.2494 tons

## 4. WHAT VARIABLES ARE IN THE MACT_GEN FILE ?

The following table lists the information in the MACT_GEN spreadsheet (MACT_GENERAL_july01_02_post.xls) and how it relates to what is in the MACT_GEN.txt file.

| Column in MACT_GEN spread-sheet | Description/ Name of Variable | Value contained in MACT_Gen (where appropriate) | Location of value in MACT_gen.txt |
|---|---|---|---|
| A | Name of MACT category | | columns 45-82 |
| B | MACT code | | columns 1 to 6 |
| C | Percent Reduction for Existing Sources (ExistEff) | | columns 10-14 |
| D | Percent Reduction for New Sources (New_Eff): This variable allows you to specify a different reduction for New Sources (which EMS-HAP assumes to be located at existing sources - this would happen if an existing facility constructed a new operation or reconstructed an existing one). In most cases, these data were not collected. | If not collected, New_Eff= ExistEff | columns 17-21 |
| E | percentage of future emissions attributed to new sources (NEWRATE) | Equal to zero in all cases | columns 24-28 |
| F | Apply Flag: instructs EMS-HAP whether or not to apply reduction | yes=1; no=0<br>equal to 1 whenever compliance year is greater than or equal to base year. | column 41 |
| G | Compliance year for the standard | | Not in MACT_gen.txt |
| H | MACT source flag (SRC_FLAG): Provides information on whether standard affects major, area or both major&area sources. If SRC_FLAG=major, and inventory source type is area, then the reduction is not applied. | M=major<br>A=area<br>B=both major and area | column 43 |
| I | Number of years passed 1990 that the Standard is expected to be promulgated (BIN) | possible values are 2, 4, 7 or 10 | Not in MACT_gen.txt |
| J | Compliance date for the standard: EMS-HAP only applies the reduction if the compliance date is earlier than or within the projected year. If the compliance date occurs within the projected year, then the reduction is prorated to account for the portion of the projected year which is after the compliance date | | columns 30-38 |
| K | Information on whether process or pollutant specific information is available for this MACT (if so, then this MACT code will also be found in the MACT spec file) | | Not in MACT_gen.txt |
| L | comments | | Not in MACT_gen.txt |

## 5. WHAT VARIABLES ARE IN THE MACT_SPEC FILE ?

The following table lists the information in the MACT_SPEC spreadsheet (MACT_SPECIFIC_July01_02_post.xls) and how it relates to what is in the MACT_SPEC.txt file

| Column in MACT_SPEC spreadsheet | Description/Name of Variable | Value contained in MACT_Gen (where appropriate) | Location of value in MACT_spec.txt ancillary file |
|---|---|---|---|
| A | Name of MACT standard | | Not in MACT_spec.txt file |
| B | MACT code | | columns 1 to 6 |
| C | Name of Pollutant being reduced | | Not in MACT_spec.txt file |
| D | NTI HAP code for pollutant being reduced | | columns 9 to 11 |
| E | Name of Process being reduced | | Not in MACT_spec.txt file |
| F | 8-digit SCC for process being reduced | | columns 20 to 27 |
| G | 6-digit SCC for process being reduced | | columns 29 to 34 |
| H | Percent Reduction for Existing Sources (ExistEff) | | columns 38 to 42 |
| I | Percent Reduction for New Sources (New_Eff): This variable allows you to specify a different reduction for New Sources (which EMS-HAP assumes to be located at existing sources - this would happen if an existing facility constructed a new operation or reconstructed an existing one). | New_Eff= ExistEff | columns 45 to 49 |
| not in spreadsheet | percentage of future emissions attributed to new sources (NEWRATE) | Equal to zero in all cases | columns 52 to 56 |
| not in spreadsheet - use value from MACTgen | Apply Flag: instructs EMS-HAP whether or not to apply reduction (yes=1; no=0) | equal to 1 whenever compliance year is greater than or equal to base year. - used same value as MACT_gen | column 58 |
| not in spreadsheet - use value from MACTgen | MACT source flag (SRC_FLAG): Provides information on whether standard affects major, area or both major&area sources. If SRC_FLAG=major, and inventory source type is area, then the reduction is not applied. | M=major<br>A=area<br>B=both major and area<br>-used same value as MACT_gen | column 60 |
| | comments | | Not in MACT_spec.txt file |

## 6. WHERE DID THE INFORMATION IN THESE FILES COME FROM?

The MACT codes came from values assigned to the July 2001 version of the 1996 National Toxics Inventory during its development. Some of the MACT codes are in flux and will be changing to provide more specific information e.g., new codes have been developed to distinguish combustion versus non-combustion pulp and paper emission sources (1626-2 and 1626-1). Where data were not available to distinguish the sources with regards to the more specific codes, the broader code (e.g., 1626 for pulp and paper) was still used. As these codes change, the MACT_gen and MACT_spec files will also change.

The emission reductions and source applicability flag (major, area or both) came primarily from information collected on the individual MACT standards from the project leads, preambles to proposed and/or final rules and fact sheets. A 100% rule effectiveness was assumed. For two of the categories, utility boilers, coal and municipal landfills, reductions were based on criteria pollutant-based programs. Other specific assumptions can be seen in the comments section of the MACT_gen or MACT_spec spreadsheets .A more detailed explanation for these categories can be found in the MACT_gen.txt file.

For some MACT categories, project leads estimated, based on their knowledge of the industry, that some HAPs would not be reduced by the rule. This estimation does not necessarily mean the HAPs are not covered by the rule (with the exception of perchloroethylene drycleaners, which is applied only to perchloroethylene); it could also mean, in the judgement of the project lead, the potential compliance techniques that facilities may choose will not result in reductions to these HAP.

In all cases, it was assumed that the percentage of the emissions coming from new sources is zero (which would result in no application of the emission reduction from new sources). In most cases (unless specific data were provided by the project lead) the reduction for new sources was set equal to the reduction for existing sources. The compliance dates came from information from project leads, preambles, etc. and also the tables found on the air toxics website on the MACT and Section 129 rules web page at http://www.epa.gov/ttn/atw/eparules.html.